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ELEMENTS INFLUENCING THE ADOPTION OF ELECTRONIC BANKING IN PAKISTAN AN INVESTIGATION CARRIED OUT BY USING UNIFIED THEORY OF ACCEPTANCE AND USE TECHNOLOGY (UTAUT) THEORY

Mehreen Malik

Hailey College of Banking & Finance, University of the Punjab, Lahore, Pakistan

Email: **sm.malik4914@gmail.com**

Abstract

Purpose - With the upsurge, massive growth and development of internet and information technology, banking and financial services are being offered by the banks to their customers through e-banking extensively. This study aims to identify the elements influencing the adoption of Electronic Banking in Pakistan by using extended Unified Theory of Acceptance and Use Technology (UTAUT) theory.

Design/methodology/approach – The research model was tested using survey-based research from 150 customers of three commercial banks of Pakistan. Data was analyzed using Statistical Package for Software Sciences.

Findings - The findings supported all hypothesized relationship of Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Security (S), Risk (R) and Trust (T) with the Behavioral Intention (BI) and Usage Behavior (UB). The key and most important construct of usage of consumer's behavior in internet banking adoption is explained and positive relationship is seen among PE, EE, SI, FC, R, T, and S at the significance level 0.00. The Confirmatory Factor Analysis (CFA) explained the total variance of 78.44%.

Practical implications – The findings of this research would help the banks managers in making their strategic decisions and policies for the implementation of e-banking. Additionally, the banks can improve their security systems by eliminating the element of risk and gaining the trust of their customers.

Originality/value - The study is contributing in the literature by incorporating and testing UTAUT theory proposed by [1], for studying the factors which are effecting the adoption of e-banking in Pakistan, this theory was extended by adding three additional constructs.

Keywords: **Electronic Banking, Unified Theory of Acceptance and Use of**

Technology (UTAUT), Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Risk (R), Trust (T), Security (S), Usage Behavior, Behavioral Intention

INTRODUCTION

In the era of technology, global leaders are moving towards the adoption and usage of advance technologies. Technological trends are followed by the financial sector. This is especially true for the banking sector, which is moving towards the ever-growing trend of electronic banking. Electronic banking refer to the availability of banking products and services via an electronic platform, such as an internet browser or a phone application. As such, developing countries are attempting to adapt to the growing trend of online banking. Pakistan is among one developing countries attempting to embrace internet technology within the banking sector. According to State Bank of Pakistan (SBP, 2002) e-banking history in Pakistan was founded in 1987 with the first installation of ATM. Accordingly, SBP played a supportive role for the growth of e-banking in Pakistan. However, SBP regularly introduces updated rules and regulations to create a bettered banking environment that ensures the protection of customer information. As per the SBP regulations, bank systems increasingly diversify for online services. Services now include transfer of funds, payment of utility bills, and fast and secure use of ATM cards [2]. Thus, e-banking has led to the growth of branchless banking in Pakistan. Electronic banking offers many advantages to its users. The adoption of e-banking technology is convenient for the customers as well as for employees of bank [3]. Users now can perform transactions 24/7 anywhere at anytime. Electronic banking represents an ideal source of new customer marking and increasing bank revenue [4].

BACKGROUND OF E-BANKING IN PAKISTAN

According to the SBP annual report, during 2017 and 2018, a sharp increase is observed in branchless banking accounts. By 2018, the number of active accounts reached 21.7 million. In particular, branchless banking performed an essential role in providing basic banking facilities online for customers (SBP Annual Report, 2018). Table 1 illustrates the electronic banking statistics for the past five years. Online branches showed a minor increase in FY18 comparing to FY17. A growth in ATM machines can be observed as well as in number of e-banking financial transactions. Indicating the influx of e-banking influence on the banking structures within Pakistan. However, there is a significant gap in academic literature exploring the phenomenon of e-banking within Pakistan. Previous researchers heavily focused on European expansion of e-banking, but have yet to consider how e-banking in Pakistan contributes to financial success of the banking sector. Additionally, there is a notable lack of literature addressing the incorporation of banking theoretical models, such as the Unified Theory of Acceptance and the Use of Technology (UTUAT) model within assessments of e-banking adoption. Overall, this study addresses this gap by exploring how variables of Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Risk (R), Trust (T), Security (S), Usage Behavior, Behavioral Intention are effecting the adoption of e-banking in Pakistan. Additionally, this study expands upon previous knowledge by assessing Security, Risk, and Trust within the UTUAT model for assessing the contribution of these variables in e-banking implementation in Pakistan. This is critical as it allows for foundational research that may be used by bank managers in Pakistan who are looking for improving or implementing e-banking models.

Financial Year	Real Time Online Branches (RTOB)	ATM	Number of E-Banking financial transactions	Registered Users (Internet banking only)
2014	10640	8240	403652	1478301
2015	11315	9597	469057	1811707

2016	12674	11381	543750	1958034
2017	14150	12698	625846	2347026
2018	14850	14019	756401	3113728

Table 1: Electronic Banking Statistics.

THEORETICAL MODELS OF ELECTRONIC BANKING

Several theoretical models are available for studying the human behavior regarding the adaption and use of information technology [5]. For studying human behavior regarding the IT adoption many technological adoption theories are developed by various researchers. Each of these theories will be briefly defined as they will be critical to the objectives and hypotheses of this study. There are eight main theories found in the literature on adoption of IT. The Innovation Diffusion Theory (IDT) defines the user's behavior regarding the technological changes . These include: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability . These all independent factors affect the adoption of IT.Next, the Theory of Reasoned Action (TRA), which is used for studying the human behavior regarding the adoption of IT [6]. Being a dominant theory it is used in many studies of behavioral intention [7].Theory of Planned Behavior (TPB) is derived out of TRA. A new concept of Perceived Behavioral Control was added in it. This theory was mainly applied for studying intentions and behaviors of individual [8]. This theory can be effectively applied on different fields of IT for studying its usage and acceptance level [9].Technology Acceptance Model (TAM) is the most comprehensively used model for studying adoption and behavior of individuals in IT. Its main variables are perceived usefulness and ease of use [10]. TAM2 is an extension of TAM that includes an analysis of how the technology is perceived as useful and how the subjective norm impacts the usage intent [11]. TAM2 is the enlarged form of TAM, it is developed by adding additional constructs in TAM. Combined TAM-TPB (CTAM-TPB) is hybrid model developed from the paradigms of Technology Acceptance Model and Theory of Planned Behaviour. This model was developed for creating improved and advance model for studying technology usage and its acceptance among its users [12].Social Cognitive Theory (SCT) is used for studying human behaviour on a large scale by [13]. This theory was applied by them in the field of computer usage and its utilization. Model of PC Utilization (MPCU) was developed on the basis of Theory of Human Behaviour [14]. This model was purely used for studying the PC utilization. Additionally, this model can also be applied in IT for studying human behaviour. Motivational Model (MM) is used in the field of Information and Communication Technology; this model can be applied for studying human behaviour. This model has been used by many researchers. The most prominent theory in academic research is the Unified Theory of Acceptance and Use of Technology (UTAUT) . The UTAUT model is considered to be the most widely used and latest theory for studying human behaviour in adoption of IT. Therefore, it is used as a grounded theory for this research. The tenants of UTAUT theory hold that the acceptance of research incorporates a series of four moderates that can be used to assess dynamic influences. These dynamic influences include organizational context, user experience, and demographic characteristics. This model has been tested widely and it was found the most comprehensive and preferable over the existing technological acceptance models [15-17]. As it was found to be most preferable but only a little research has been done on this model as compared to previous models [16,18] indicated in their research the need of studies based on the validity and generalizability of UTAUT. The main constructs of this theory are Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Behavioural Intention and Usage Behaviour. In this research an extensive model of UTAUT is presented and these three constructs i.e. security, risk and trust are added to the existing model. These three construct were added by keeping in mind the future research recommendations of its authors "future research should focus on identifying constructs that can add to the prediction of intention and behaviour over and above what is already known and understood". Research hypotheses for this research are developed on the grounded theory of UTAUT. However, UTAUT is not sufficient for identifying factors that

influence the adoption of e-banking in Pakistan. As such, an extended model is used in this research by adding three additional constructs: (1) security, (2) risk and, (3) trust.

Aims and Hypotheses

The objective of this research was to find the factors which are affecting the adoption of e-banking in Pakistan. This research has identified a gap by extending and adding three additional constructs to the existing model of UTAUT theory. Furthermore, by applying this theory in Pakistan's cultural and social context as suggested by[1]. To consider the intersection between the previously reviewed theories and the adoption of e-banking in Pakistan, the following variables were recreated for the hypothesis testing The proposed hypotheses were used to assess relationship between Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Security (S), Risk (R) and Trust (T) with the Behavioral Intention (BI) and Usage Behavior (UB) (Figure 1). Table 1 illustrates the connection between these variables and e-banking theoretical foundations. The following eight hypotheses were proposed:

H1. Performance Expectancy positively relates with the behavior of users while adopting E-Banking.

H2. Effort Expectancy positively relates with the behavior of users while adopting E-Banking.

H3. Social influence positively relates with the behavior of users while adopting E-Banking.

H4. Security positively relates with the behavior of users while adopting E-Banking.

H5. Risk positively relates with the behavior of users while adopting E-Banking.

H6. Trust positively relates with the behavior of users while adopting E-Banking.

H7. Facilitating Conditions positively relates with the behavior of users while adopting E-Banking.

H8. Function of behavioral intention as mediator in connection with performance expectancy and usage behavior.

H9. Function of behavioral intention as mediator in connection with effort expectancy and usage behavior.

H10. Function of behavioral intention as mediator in connection with social influence and usage behavior.

H11. Function of behavioral intention as mediator in connection with security and usage behavior.

H12. Function of behavioral intention as mediator in connection with risk and usage behavior.

H13. Function of behavioral intention as mediator in connection with trust and usage behavior.

H14. Function of behavioral intention as mediator in connection with facilitating conditions and usage behavior.

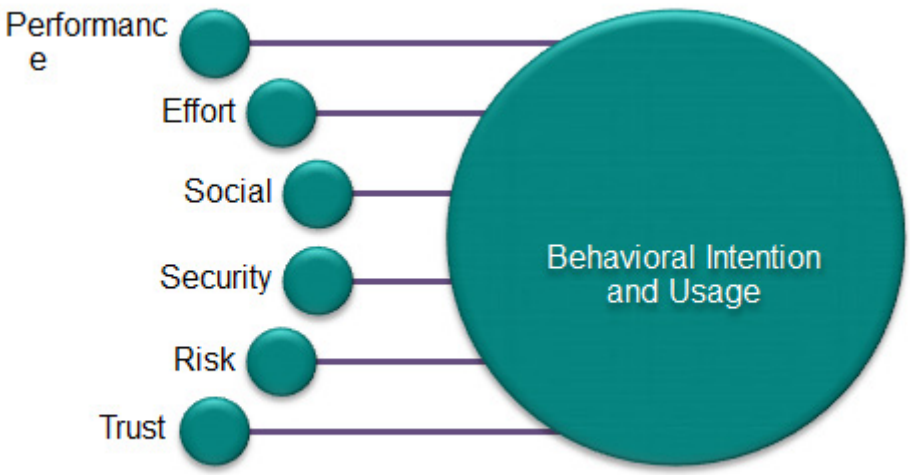


Figure 1. Research Model.

H1: Performance expectancy • The expectation that technology will facilitated gaining a job . For predicting human behavior intentions for adoption of IT, it is considered as a powerful construct. It is believed that customers will use e-banking when they will know that it has positive impact on their jobs.

- The five constructs from that pertain to performance expectancy are perceived usefulness (TAM/TAM2 and C-TAM-TPB), extrinsic motivation (MM), job-fit (MPCU), relative advantage (IDT), and outcome expectations (SCT)"

H2: Effort expectancy • The degree of ease associated with the use of the system". It is perceived that Pakistani bank's customer prefer effort expectancy while adopting e-banking.

- Derived from the three the three models of "Ease of use" from the Innovation Diffusion Model (IDT), "Complexity" from the Model of PC Utilization (MPCU) (Thompson et al. 1991), and "Perceived ease of use" from the TAM/TAM2 Model (Davis 1989).

H3: Social Influence • The degree to which an individual perceives that important others believe he or she should use the new system". Social Influence has direct effect on behavioral intention. According to various studies social influence is the determinant of human behavior while adopting e-banking

- Social influence is derived from the constructs of various "Social factor" from the Model of PC Utilization (MPCU) [14], "Image" from the Innovation Diffusion theory (IDT) (Rogers 1995), "Subjective norm" from the TRA, TAM2, TPB/DTPB and CTAM-TPB [19].

H4: Security • IS practitioners and researchers generally agree that security is a multidimensional construct that is derived from several underlying dimensions (e.g. confidentiality, integrity, availability, non-repudiation)"[20].

- This model predicts the various variables such as security which effects the adoption of IT. Research suggests that people are hesitant giving data online because of security concerns [21]. Therefore, security has a positive influence on Behavioral Intention
- "Perceived Security" roots can be found in Technology Acceptance Model (TAM).

H5: Risk•In e-banking context risk is defined as "the potential of loss in the pursuit of a desired outcome from using electronic banking services" [22]. Risk perspective in adoption of e-banking is focused by limited studies. According to a research in Turkey, it was found majority of e-banking user's perceived high risk on the other hand, psychological risk and financial risk in doing online banking were highlighted by the non-users [23]. Same results were indicated by

a study in Kerala, highlighting the risk of fraud and financial risk as the main obstacle in doing banking online [24].

H6: Trust

- For the purpose of this study it is defined as “Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another” [25] coupled with “ the conscious regulation of one’s dependence on another that will vary with the task, the situation, and the other person”[26].
- In e-banking lack of trust is more prominent factor than traditional banking. For ensuring customer’s trust it is compulsory for all banks to provide a safe and secure environment for doing banking online [27]. Lack of trust is the main element pointed out by many studies which restrains the customers from doing banking online [28].

H7: Facilitating Conditions

- Facilitating conditions are factors that effects the customer adoption and behavioral intention in doing banking online.
- Facilitating Conditions is defined “as the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system”. Several studies found that in the context of e-banking, facilitating conditions influences the behavioral intention and usage behavior of customers [29].

H8 – H14

- Behavioral intention is acting as a mediator between independent and dependent variables. Behavioral intentions ultimately lead towards the actual usage of IT.

Variable	**Theory Derivation and Definition**
H1: Performance expectancy	The expectation that technology will facilitated gaining a job (Venkatesh et al. 2003). For predicting human behavior intentions for adoption of IT, it is considered as a powerful construct. It is believed that customers will use e-banking when they will know that it has positive impact on their jobs. • The five constructs from that pertain to performance expectancy are perceived usefulness (TAM/TAM2 and C-TAM-TPB), extrinsic motivation (MM), job-fit (MPCU), relative advantage (IDT), and outcome expectations (SCT)”
H2: Effort expectancy	The degree of ease associated with the use of the system”(Venkatesh et al. 2003It is perceived that Pakistani bank’s customer prefer effort expectancy while adopting e-banking. Derived from the three the three models of “Ease of use” from the Innovation Diffusion Model (IDT) (Rogers 1995) , “Complexity” from the Model of PC Utilization (MPCU) (Thompson et al. 1991), and “Perceived ease of use” from the TAM/TAM2 Model (Davis 1989).
H3: Social Influence	The degree to which an individual perceives that important others believe he or she should use the new system” (Venkatesh et al. 2003). Social Influence has direct effect on behavioral intention. According to various studies social influence is the determinant of human behavior while adopting e-banking Social influence is derived from the constructs of various “Social factor” from the Model of PC Utilization (MPCU) (Thompson et al. 1991), “Image” from the Innovation Diffusion theory (IDT) (Rogers 1995), “Subjective norm” from the TRA, TAM2, TPB/DTPB and CTAM-TPB (Malhotra and Galletta 1999).

H4: Security	IS practitioners and researchers generally agree that security is a multidimensional construct that is derived from several underlying dimensions (e.g. confidentiality, integrity, availability, non-repudiation)" (Hartono et al. 2014). This model predicts the various variables such as security which effects the adoption of IT. Research suggests that people are hesitant giving data online because of security concerns (Grabner-Kräuter and Faullant 2008). Therefore, security has a positive influence on Behavioral Intention "Perceived Security" roots can be found in Technology Acceptance Model (TAM).
H5: Risk	• In e-banking context risk is defined as "the potential of loss in the pursuit of a desired outcome from using electronic banking services". Risk perspective in adoption of e-banking is focused by limited studies. According to a research in Turkey, it was found majority of e-banking user's perceived high risk on the other hand, psychological risk and financial risk in doing online banking were highlighted by the non-users. Same results were indicated by a study in Kerala, highlighting the risk of fraud and financial risk as the main obstacle in doing banking online.
H6: Trust	For the purpose of this study it is defined as "Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (Rousseau et al. 1998) coupled with " the conscious regulation of one's dependence on another that will vary with the task, the situation, and the other person" (Zand 1972). In e-banking lack of trust is more prominent factor than traditional banking. For ensuring customer's trust it is compulsory for all banks to provide a safe and secure environment for doing banking online (Popoola & Arshad, 1970). Lack of trust is the main element pointed out by many studies which restrains the customers from doing banking online (Flavián et al. 2006).
H7: Facilitating Conditions	• Facilitating conditions are factors that effects the customer adoption and behavioral intention in doing banking online. Facilitating Conditions is defined "as the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (Venkatesh et al. 2003). Several studies found that in the context of e-banking, facilitating conditions influences the behavioral intention and usage behavior of customers (Morosan and DeFranco 2016).
H8 – H14	• Behavioral intention is acting as a mediator between independent and dependent variables. Behavioral intentions ultimately lead towards the actual usage of IT. • The following hypothesis are proposed on the basis of mediating role of behavioral intention between independent variables (performance expectancy, effort expectancy, social influence, facilitating conditions, security, risk and trust) and dependent variable (usage behavior).

Table 2. Connection with Variables and E-Banking Theory

METHODS AND MATERIALS

The following survey-based research with a non-probability sampling technique was used to test for relationships between the variables of Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Security (S), Risk (R) and Trust (T) with the Behavioral Intention (BI) and Usage Behavior (UB).The sampling framework were limited to the three banks of Pakistan. These banks were selected on the selection criteria of that the banks must fall in top 10 category of commercial banks of Pakistan. These banks must be having traditional as well electronic banking. The selected banks must be willing to allow data collection from their customers for a research project. The data collection was administered by the banks' employees' (either counter or back office staff) having familiarity,

good knowledge and intense relationship with their customers to whom the questionnaires would be administered. The selected three banks, Habib Bank Limited, Allied Bank Limited, and Bank of Punjab, fulfilled the above-mentioned criteria and were willing to cooperate in data collection process for this study. The Lahore based branches of these banks were selected on the base of convenience sampling. The final sample size included 150 participants of which 30.7% were females and 69.3% were males. The majority of participants fell between the age of 30-40 years. Occupation was generally traders and government employees; however, occupation details were not considered within this study. Table 2 shows the demographical analysis of collected data.

Data Collection and Analysis

Data was collected through questionnaire using a five-point Likert Scale where (1= strongly disagree, 5= strongly agree). Validity of data was ensured by doing a careful pilot study of 48 questionnaires (16 questionnaires to each bank). The questionnaire was revised and scrutinized on the basis of results of pilot study. On the basis of these modifications hypotheses were readjusted for clarity and accuracy of results. The final revised draft of questionnaire was distributed for data collection. Around 55 questionnaires were distributed to each bank allowing the possibility to discard the uncompleted, damaged or invalid questionnaires later on. In final analysis dually completed and valid, 50 questionnaires from each of three banks, which were without omission/errors were considered for analysis. Hypotheses and data was analyzed using questionnaire data. IBM SPSS- a statistical analysis software package [30] was used for statistical analyses. The following presents the results of this study.

Variable		**N**	**Percentage**
Gender	Male	104	69.3
	Female	46	30.7
Age	20-30	48	32.0
	30-40	85	56.7
	40-50	11	7.3
	Above 50	06	4.0
Education	Under Matric	84	56.0
	Above Matric	39	26.0
	Bachelors and Above	27	18.0
Occupation	Government Employee	47	31.3
	Bank Employee	09	6.0
	Private Sector Employee	29	19.3
	Trader	47	31.3
	Others	18	12.0
Banking Usage	Yes	150	100
	No	-	-
Customer	HBL	50	33.33
	ABL	50	33.33
	BOP	50	33.33
Electronic Banking Usage	Yes	78	52.0
	No	72	48.0
Form of Electronic Banking	Online Banking	06	4.0
	Mobile Banking	26	17.3
	ATM	46	30.7
	None of the above	72	48.0
Purpose of usage of Electronic Banking	Personal and Private use	15	10.0
	Business transactions	23	15.3

	Both of the above	40	26.7
	None of the above	72	48.0
Total		**150**	**100**

N= Frequency

Table 2. Demographical Analysis

Validity and Reliability

Data consistency was checked through reliability analysis. Reliability of data is that the data produces the same results over being tested again and again [31]. For measuring reliability and consistency of data various coefficients are used which are known as Reliability Coefficients. "When using Likert-type scales it is imperative to calculate and report Cronbach's alpha coefficient for internal consistency reliability for any scales or subscales one may be using. The analysis of the data then must use these summated scales or subscales and not individual items. If one does otherwise, the reliability of the items is at best probably low and at worst unknown. Cronbach's alpha does not provide reliability estimates for single items [32]. The Cronbach's alpha value if it is >0.34 indicates weak relationship, $0.34 \leq r \leq 0.70$ indicates moderate relationship, $r \geq 0.70$ indicates strong relationship. For testing reliability for this research Cronbach's alpha value was used and results indicated an overall strong relationship as all values were above 0.641.For this study, mono-source bias is one form of validity threat to consider. Mono-source bias refers to the use of only a single form of measurement [33]. For this study, only survey-based data was utilized. However, this was necessary for the time and financial constraints of this study. Ideally, future researchers will replicate this study, but with the use of multiple forms of methodologies for increased validity. Also, a similar threat to external validity is sample selection bias. This includes the purposive sampling from banking members at specific banks in Pakistan. This bias was needed for this study as it allowed selection of individuals that were specific to the phenomenon assessed. However, it is possible that the results of this study are biased due to the purposive selection; however, future research can be completed to draw upon a more general range of banks in Pakistan to explore the impact of this bias. Finally, the last threat to internal validity includes the use of the omitted-variable bias, which is a statistical analysis that excludes one or more study variables . For this, factor analysis was used as a means of reducing the number of variables. As such, variables having similar characteristics and importance were grouped together. The variance among variables is explained with the help of factor analysis . However, this statistical analysis was combined with multiple forms of analyses that did not omit variables. As such, this threat to validity is considered minimal, but should still be acknowledged.

Variables	No. of items	Cronbach's alpha
Performance Expectancy	4	.952
Effort Expectancy	4	.679
Social Influence	3	.641
Facilitating Conditions	4	.920
Security	5	.714
Risk	4	.716
Trust	3	.676
Behavioral Intention	2	.964
Usage Behavior	3	.877

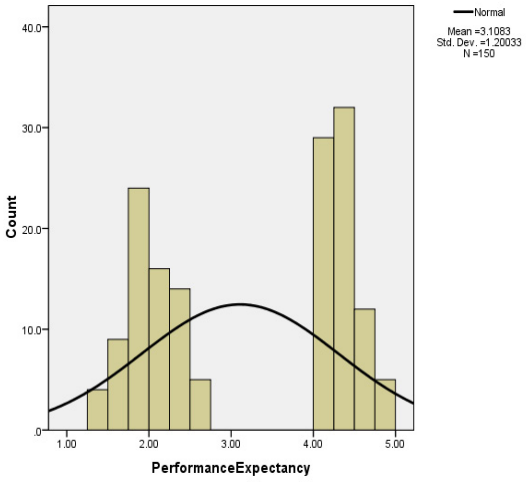
PE= Performance Expectancy * EE= Effort Expectancy *SI= Social Influence *FC= Facilitating Conditions *S= Security *R= Risk *T= Trust *BI= Behavioral Intention *UB= Usage Behavior

Table 3.*Cronbach's Alpha Reliability Test*

RESULTS

The research findings are presented on the basis of following analysis and tests applied on the collected data:

Group wise data was not taken into consideration in connection with variables but would be useful for any further analysis and future studies. The banking usage rate was 100%, while 52% users used electronic banking. Majority of people who used e-banking was in the form of ATM while the purpose of usage was for both private and business transaction. The rest 48% respondents were those who do not use e-banking in either form. These 48% were the respondents who clearly highlighted the security, risk and trust as elements which are influencing their adoption/usage of e-banking. Their responses highlighted the factors of security, risk, and trust and proved the acceptance of hypotheses (H4, H5, and H6). Normality analysis was performed for checking the normal distribution of data. Through this analysis it is checked how much the data deviates from the central point. These three methods are used for checking the normality of data: Histogram [34], Probability plots. For this research it was found from all these tests that the distribution of data is normal. Figure 2 shows the result of histogram, Figure 3 Probability plots, Table 3 presents the results of skewness and kurtosis test.



Variables	Skewness	Kurtosis
PE1	-.016	-.1.429
PE2	-.224	-1.267
PE3	-.403	-1.019
PE4	-.0121	-1.547
EE1	-.112	-1.602
EE2	-.098	-.798
EE3	-1.076	2.242
EE4	.076	-1.561
SI1	-.230	-1.053
SI2	-.369	-1.275
SI3	-.938	.502
FC1	-.345	-1.248
FC2	-.386	-1.250
FC3	-.334	1.245
FC4	-.166	-.732
S1	.461	-1.289
S2	.121	1.873
S3	.869	1.408
S4	-.158	-1.615
S5	.447	-1.552
R1	.453	-.949
R2	.503	-1.470
R3	-.661	1.167
R4	.492	-1.406
T1	-.286	1.717
T2	-.299	-1.680
T3	.282	-1.726
BI1	-.067	1.616
BI2	-.063	1.532
UB1	.008	-1.488
UB2	.215	-1.459
UB3	.294	-1.331

* PE= Performance Expectancy * EE= Effort Expectancy *SI= Social Influence *FC= Facilitating

Conditions *S= Security *R= Risk *T= Trust *BI= Behavioral Intention *UB= Usage Behavior

Table 4. *Skewness and Kurtosis Test*

For assessing correlation between variables, correlation analysis was performed. Positive values indicate positive correlation while negative values indicate negative correlation. Furthermore, zero indicates no correlation among variables. Table 5 shows overall positive correlation among variables and the correlation for variable itself is one.

	PE	EE	SI	FC	S	R	T	BI	UB
PE	1								
EE	.487**	1							
SI	.102**	.094**	1						
FC	.863**	.463**	.091**	1					
S	.114**	.105**	.980**	.106**	1				
R	.408**	.192**	.088**	.076**	.129**	1			
T	.869**	.429**	.101**	.110**	.100**	.096**	1		
BI	.941**	.444**	.082**	.087**	.086**	.034**	.098**	1	
UB	.899**	.482**	.081**	.086**	.085**	.078**	.226**	.917**	1

**Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

*PE= Performance Expectancy * EE= Effort Expectancy *SI= Social Influence *FC= Facilitating Conditions *S= Security *R= Risk *T= Trust *BI= Behavioral Intention *UB= Usage Behavior

Table 5.*Correlation Analysis*

For testing the hypotheses this research used simple regression analysis and multiple regression analysis in order to find out the factors affecting the adoption of e-banking in Pakistan. The results of regression analysis are presented in table 6. There exists a positive relationship between performance expectancy and usage behavior in adoption of E-Banking (β = 0.899, P<0.01) thus, H1 was proved. There exists a positive relationship between effort expectancy and usage behavior in adoption of E-Banking (β = 0.482, P<0.01) thus, H2 was proved. There exists a positive relationship between social influence and usage behavior in adoption of E-Banking (β = 0.676, P<0.01) thus, H3 was proved. There exists a positive relationship between security and usage behavior in adoption of E-Banking (β = 0.085, P<0.01) thus, H4 was proved. There exists a positive relationship between risk and usage behavior in adoption of E-Banking (β = 0.401, P<0.01) thus, H5 was proved. There exists a positive relationship between trust and usage behavior in adoption of E-Banking (β = 0.699., P<0.01) thus, H6 is proved. There exists a positive relationship between facilitating conditions and usage behavior in adoption of E-Banking (β = 0.656., P<0.01) thus, H7 was proved.

Relationships	***r²***	***β***	***P***
PE → UB	.806	.899	.000
EE → UB	.227	.482	.000
SI → UB	.453	.676	.000
S → UB	.001	.085	.000
R → UB	.155	.401	.000
T → UB	.699	.837	.000
FC → UB	.656	.811	.000

PE= Performance Expectancy * EE= Effort Expectancy *SI= Social Influence *FC= Facilitating Conditions *S= Security *R= Risk *T= Trust *BI= Behavioral Intention *UB= Usage Behavior

Table 6. Regression Analysis

Mediation analysis was performed using the [35] assumptions for checking the mediation effect between the independent and dependent variables. Results of mediation analysis are presented in the following tables. Table 7 shows the partial mediation between performance expectancy and usage behavior according to [35] assumptions hence proving H8. Table 8 shows the full mediation between effort expectancy and usage behavior according to [35] assumptions hence proving H9. Table 9 shows the full mediation between social influence and usage behavior according to [35] assumptions hence proving H10. Table 10 shows the full mediation between security and usage behavior according to [35] assumptions proving H11. Table 11 shows the full mediation between risk and usage behavior according to [35] assumptions hence proving H12. Table 12 shows the partial mediation between trust and usage behavior according to [35] assumptions hence proving H13. Table 13 shows the partial mediation between facilitating conditions and usage behavior according to [35] assumptions hence proving H14.

Variable	**Step 1**	**Step 2**	**Step 3**
Control Variables			
Gender			
Age	-.099	.019	.029
Education	.001	.000	.008
Independent Variables	.721**	.086	.009
Performance Expectancy	-	.836**	.311**
Mediating Variable			
Behavioral Intention	-	-	.619**
Change in R^2	.513	.299	.041

Table 7. Multiple Linear Regression

Dependent Variable: Usage Behavior

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Variable	**Step 1**	**Step 2**	**Step 3**
Control Variables			
Gender			
Age	-.099	-.108	.015
Education	.001	.015	.016
Independent Variables	.721**	.626**	.023
Effort Expectancy	-	.233**	.090
Mediating Variable			
Behavioral Intention	-	-	.861**
Change in R^2	.513	.045	.291

Table 8. Multiple Linear Regression

Dependent Variable: Usage Behavior

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Variable	**Step 1**	**Step 2**	**Step 3**

Control Variables			
Gender			
Age	-.099	-.045	.027
Education	.001	-.004	.010
Independent Variables	.721**	.485**	.025
Social Influence	-	.377**	.056
Mediating Variable			
Behavioral Intention	-	-	.860**
Change in R^2	.513	.086	.245

Table 9. Multiple Linear Regression

Dependent Variable: Usage Behavior

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Variable	Step 1	Step 2	Step 3
Control Variables			
Gender			
Age	-.099	-.099	.023
Education	.001	.002	.011
Independent Variables	.721**	.723**	.036
Security	-	.011	.004
Mediating Variable			
Behavioral Intention	-	-	.891**
Change in R^2	.513	.000	.330

Table 10. Multiple Linear Regression

Dependent Variable: Usage Behavior

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Variable	Step 1	Step 2	Step 3
Control Variables			
Gender			
Age	-.099	-.082	.023
Education	.001	.004	.012
Independent Variables	.721**	.660**	.037
Risk	-	.187**	.021
Mediating Variable			
Behavioral Intention	-	-	.882**
Change in R^2	.513	.031	.299

Table 11. Multiple Linear Regression

Dependent Variable: Usage Behavior

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Variable	Step 1	Step 2	Step 3

Control Variables **Gender** **Age** **Education** **Independent Variables**	-.099 .001 .721**	.003 .043 .238**	.031 .021 .013
Trust	-	.675**	.182**
Mediating Variable			
Behavioral Intention	-	-	.752**
Change in R^2	.513	.220	.118

Table 12. Multiple Linear Regression

Dependent Variable: Usage Behavior

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Variable	**Step 1**	**Step 2**	**Step 3**
Control Variables Gender Age Education Independent Variables	-.099 .001 .721**	.027 .001 .238**	.036 .010 .019
Facilitating Conditions	-	.622**	.129**
Mediating Variable			
Behavioral Intention	-	-	.795**
Change in R^2	.513	.192	.142

Table 13. Multiple Linear Regression

Dependent Variable: Usage Behavior

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Factor Analysis was performed for finding factors and the validity of the variables of the study which is important for the studies involving multi variables. It is mainly done to reduce the number of variables in the light of importance and role in study. In this analysis the variables having similar characteristics and importance are grouped together. The variance among variables is explained with the help of factor analysis [36]. In this research Confirmatory Factor Analysis was performed to test the validity of variables. KMO (Kaiser Meyer Olkin) and Bartlett's test measures the strength of relationship among variables. [37] recommended the following values for KMO, i.e. 0.5 was hardly acceptable, values between 0.7-0.8 acceptable, the values above 0.9 were considered as superior grade of acceptability. The KMO value of the analysis of this study were above 0.9 and therefore, were considered in the high grade of acceptability (Table 14) The eigenvalue table was used to assess total variance. The eigenvalue table has been divided into three sub-sections, i.e. Initial Eigen Values, Extracted Sums of Squared Loadings and Rotation of Sums of Squared Loadings. For analysis and interpretation purpose we are only concerned with Extracted Sums of Squared Loadings". In table 15, total 9 components (variables) explained the total variance of 78.44%. These 9 components, PE, EE, SI, FC, R, S,

T, UB, BI, were found as significant elements in the adoption/usage of e-banking in Pakistan.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.931
Bartlett's test of sphericity	Approx. Chi-Square	1.22443
	Df	36
	Sig.	.000

Table 14. KMO and Bartlett's test of sphericity

DISCUSSION

During the last two decades e-banking has emerged rapidly especially in the developed countries. The advancement of e-banking in developing countries is still very low. It is necessary to find out the factors which are affecting its adoption. This study was done in Pakistan, selecting Lahore as a population. E-Banking has been studied by using different technology adoption models like TAM, TPB, TRA, IDT etc. In the research UTAUT (Unified Theory of Acceptance and Use of Technology) the newest and most comprehensive theory of technology adoption was used for finding the factors affecting the adoption of e-banking in Pakistan. Despite of its wider applicability and usage the need to extend this model was felt and three other influential constructs viz. security, risk and trust were incorporated in it. An extended model was developed and hypotheses were proposed. The hypotheses were tested using the statistical package for software sciences. The results showed that the constructs, performance expectancy, effort expectancy, social influence, security, risk, trust and facilitating conditions are the elements which influences the usage behavior of individuals. These constructs were mediated by behavioral intention and the relationship between variables, partial and full mediation was found which indicates that these independent factors affect the behavioral intention and thus behavioral intention ultimately leads towards the usage of electronic banking. For checking the validity of data, Confirmatory Factor Analysis was performed. A significant relationship among variables was observed through KMO and Bartlett's test. The validity among variables was checked through the total variance test which explained the total variance of 78.44% indicating that, Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Risk, Security and Trust are the elements influencing the behavioral intention and usage behavior of customers in adoption of e-banking.

Component		**Initial Eigenvalues**			**Extracted Sums of Squared Loadings**	
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	27.896	49.827	49.827	27.896	49.827	49.827
2	6.011	9.237	59.064	6.011	9.237	59.064
3	2.817	7.764	66.828	2.817	7.764	66.828
4	2.699	4.274	71.102	2.699	4.274	71.102
5	1.385	2.284	73.386	1.385	2.284	73.386
6	1.206	1.901	75.287	1.206	1.901	75.287
7	1.171	1.048	76.335	1.171	1.048	76.335
8	1.094	1.090	77.425	1.094	1.090	77.425
9	1.053	1.015	78.44	1.053	1.015	78.44

Table 15. Total Variance Explained

CONCLUSION

The research is contributing in the theory by incorporating and testing UTAUT theory proposed by [1]. For studying the factors which are effecting the adoption of e-banking in Pakistan

this theory was extended by adding three additional constructs. The gaps identified in the existing research were tried to cover through these additional constructs. Extensive research is available on the grounded theories of TAM, TRA, TPB, and IDT, comparatively less UTAUT based research is available. There is a need to study the applicability of this model in the various contexts of IT. Since a very little research is available in Pakistan based on this theory. It was logically correct for studying the human behavior, in the social and cultural environment of Pakistan, regarding the adoption of e-banking.By having an extensive knowledge of human behavior regarding the adoption of e-banking, this research will help the banks managers in making their strategic decisions for the implementation of e-banking. As well they will get to know the factors which are effecting the adoption of e-banking in Pakistan. They will make policies while keeping in mind the concerns of customers. Additionally, the banks can improve their security systems by eliminating the element of risk and gaining the trust of their customers.

Limitations and Future Research

This research was limited to specific urban area of Pakistan by having a smaller sample size. Its number of customers are limited the only three banks of Pakistan. Furthermore, basic research statistical tools and methods were applied on it. Being an academic research in nature it was limited to a time frame of only one semester. Future research can be done by having a more generalized focus by increasing the population and sample size. Additionally, including all other urban areas of Pakistan. This research can be done in rural areas of Pakistan as 66% of Pakistan's population lives in rural areas. UTAUT model can be further extended and can lead towards the development of some theory with specific reference to e-banking as there is no theory for e-banking itself. Data analysis can be done by using the more advanced, latest tool and techniques.

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